MAA5103/MAA5105: ADVANCED CALCULUS FOR ENGINEERS AND PHYSICAL SCIENTISTS 2

December 31, 2020

Note: Alpha Version of Syllabus.

Syllabus

Course Description

The course is a continuation of MAA 4102 and MAA 5104. The primary goal of the course is to obtain a sound understanding of the basic mathematical concepts of calculus. A secondary goal is to improve the ability to reason carefully and creatively when dealing with mathematical material.

I recommend you review sections 5.3 – 5.5.

We will cover sections 6.1 – 6.5, and 7.1 – 7.4. Topics include; the Riemann integral, and infinite series. *If we have time* we will discuss uniform versus pointwise convergence of functions; sections 8.1-8.3.

Prerequisites

An introduction to proof course (such as MHF3202: Sets and Logic) and the first part of this two part series MAA4102 or MAA5104.

Course Materials

Text: Witold A. J. Kosmala, A Friendly Introduction to Analysis, second edition, Pearson Prentice Hall, Upper Saddle River, NJ 07458.

Online Resources

The lectures for this course will be provided via online videos (see lectures below). The goal is to have all content delivered asyncronously, meaning that even "live online content" (such as lecture) will be recorded and posted for later view. Attendance, although highly suggested, is not mandatory.

One Week Policy

Please be aware of the **One Week Policy**: Once you receive a graded paper back, you have **one week** to contest the grade and initiate any grade disputes. Once this one week passes, **there are no further disputes**. In particular, once the end of the semester nears, you *cannot* start disputing, say, grades from the first week or two.

Lectures

As noted above the intent of this course is to have most of the primary instruction provided by video presentations of key theorems and proofs. This is mostly because this medium is significantly easier to follow and present for large chunks of information (such as a proof) rather than writing out on a piece of paper with a document camera.

This is not to say, however, that you are expected to simply watch the videos and instantly know and understand everything. Think of the online videos as a starting point, and a good review tool to be able to go back and re-watch content as needed (in preparation of an exam for instance). However, I would be very surprised if nobody had any questions about aspects of the videos, proofs, or theorems, no matter how well presented they may be (and let's be honest, I'm sure the presentations aren't flawless no matter how hard I try!) So the live lectures will be a forum to go through examples and answer questions and I will be holding regular online meetings one could think of as a "discussion class" type setting where I will be happy to review and answer any questions regarding any of the content we have covered thus far. These meetings (live and office hours) will be recorded and posted so people can watch and rewatch any of the content, and possibly follow up with other questions or problems they might have.

Also, as many are not able to attend the live lecture due to social distancing policies. For this reason I have posted threaded discussions in the discussion forum on Canvas where anyone can post content they would like to see during live lecture, even if they are not able to attend. Keep in mind that I need time to prepare an answer to your question to present, so try to make sure and post all questions no later than the night before lecture.

Course Assignments and Grading

Currently the plan is to assign regular homework that will be largely optional (think of it as practice content and potential exam problems). Since part of the goal of this course is to improve your ability to correctly express and convey mathematical ideas, there will be regular proof writing homework, some of which will be collected (I will notify you which are potentially collected and which are suggested for practice).

There will also be Exams and a Final Exam. There will be more on this discussed at the beginning of the semester and this section will likely be updated after the first week of class.

UF Policies

The below are standard UF and math department policies, recorded here for reference and your information.

Incomplete Policy

A grade of I (incomplete) will be considered only if you meet the Math Department criteria which is found at https://www.math.ufl.edu. If you meet the criteria you must see the instructor before the beginning of finals week to be considered for an I. A grade of I only allows you to make up your incomplete work. You cannot redo any previously completed work.

Online Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://gatorevals.aa.ufl.edu/. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.

Honor Code

All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust and respect. Students are expected to pursue knowledge with integrity.

Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XIV of the Student Code of Conduct. The conduct set forth hereinafter constitutes a violation of the Academic Honesty Guidelines (University of Florida Rule 6C1-4.017). You may find the Student Honor Code and read more about student rights and responsibilities concerning academic honesty at the link https://www.dso.ufl.edu/sccr/.

Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting: https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. If a student does not supply the appropriate documentation in a timely fashion, the instructor may not be able to accommodate the student in a timely manner.

Calendar

TBD